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United States Patent [19][11] **Patent Number:** **6,035,072****Read**[45] **Date of Patent:** **Mar. 7, 2000**

[54] **MAPPING DEFECTS OR DIRT
DYNAMICALLY AFFECTING AN IMAGE
ACQUISITION DEVICE**

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Primary Examiner—Scott Rogers

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[57] **ABSTRACT**

[51] **Int. Cl.**⁷ **G06K 9/40**; H04N 1/409;
H04N 5/217

[52] **U.S. Cl.** **382/275**; 358/463; 348/241

[58] **Field of Search** 382/275, 260,
382/261, 254, 149, 141; 358/463, 448,
474, 406, 496, 483, 482; 348/125, 241,
246, 248, 249, 250, 251

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Defects such as dirt, dust, scratches, blemishes, pits, or defective elements or pixels in a CCD, scanner, photocopier, or image acquiring device are dynamically detected by processing a plurality of images via a computer. A pristine object of calibration is not required. Stationary components of the video images are found and detected so as to produce a low false alarm probability. Text segmentation and measurement of total deviation based on variability related to high-frequency components of the video image are employed to prevent applying the process or method to printed text or graphics. Additional techniques optionally employed are median filtering, sample area detection, and dynamic adjustment of scores. In special cases, only moderately blank documents are used. The dynamic defect detection allows defect compensation, defect correction, and alerting the operator of defects.

20 Claims, 8 Drawing Sheets

